

Efficient 3-D Ladar Source, Phase I

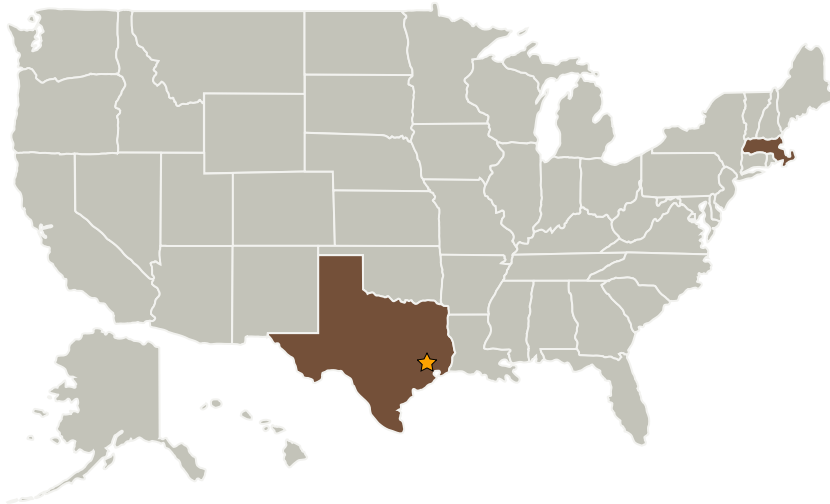
Completed Technology Project (2008 - 2008)



Project Introduction

We propose to develop a significant improvement in the performance of diode-pumped, Nd:YLF lasers by employing direct optical pumping of the upper level of the 1-micron laser transition. This novel pumping technique has been applied to other Nd laser systems, notably Nd:YAG and Nd:vanadate, but to our knowledge this has not been successfully applied to Nd:YLF laser systems. Q-Peak is in a unique position to develop this technique specifically for Nd:YLF owing to the extensive work that we have done over the past decade in developing our patented MPS systems, which employ Nd:YLF as the gain medium. Researchers who have applied this pumping technique to Nd:YAG have shown an increase in slope efficiency of about 20% and a reduction in thermal load of about 30%. We expect to see similar levels of improvement in Nd:YLF performance in this project.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Q-Peak, Inc.	Supporting Organization	Industry	Bedford, Massachusetts



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations

Massachusetts

Texas

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Glen A Rines

Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.5 Lasers